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Palabras claves: Scientific Continental Drilling Program, advances of the ICDP, ICDP in Neotropics.

Earth sciences utilize the tool “Scientific Drilling” as a window into active processes and to probe otherwise not accessible continuous series of samples from depth. Outstanding themes for drilling projects comprise research on the physical and chemical background of natural disasters such as earthquakes and volcanic activities and the evolution of environment, climate and life on planet Earth over time.

In this framework, the International Continental Scientific Drilling Program, ICDP supports exciting approaches to obtain continuous uncompromised samples from paleo – environmental and paleo – climate archives such as lacustrine sediments. To date, more than ten important lakes around the globe have been or will be cored, such as Lakes Baikal, Titicaca, Peten Itza, Bosumtwi, Qinghai, Van, Elgygytgyn, or the Dead Sea. The deposits in these lakes usually comprise continuous, datable sediments with strong climate and environmental signals over several glacial / interglacial periods of the Quaternary.

This contribution will highlight research results from previous scientific lake drilling projects of ICDP and will characterize the pathways from site survey and short piston core investigations to prospects for proposal development and funding acquisition. Furthermore, operational and technical challenges for continuous coring in deep waters as well as aspects of core curation and sample investigations will be reviewed with special reference to upcoming projects in the Neotropics.

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South American monsoon regime in the last two glacial cycles

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Palabras claves: Paleoclimate, speleothems, oxygen isotopes, Brazil.

A new $d^{18}O$ record from a speleothem collected in Tapagem cave, southeastern Brazil ($\sim 24^\circ$ S) provides a detailed picture of climate variability on orbital to millennial timescales during approximately the last 220,000 years. The record is consistent with other previously published Brazilian speleothem records but presents a more precise chronology established with use of the multi-collector, inductively – coupled plasma mass spectrometry and features an improved resolution for portions of the last glacial period. This record

now extends our knowledge of variations in the strength of the South American Monsoon System (SAMS) to an additional glacial cycle, not covered by the published Botuverá cave records. The Tapagem $d^{18}O$ record shows a dominant precession cycle with no significant phase lag with February insolation at 30° S and also confirms a remarkable interhemispheric, antiphased relationship with Asian Monsoon rainfall recorded in Chinese speleothem records. This pattern is also evident during the last two glacial terminations when very dry and wet conditions are observed in China and Brazil, respectively. These abrupt changes are perfectly synchronous within age errors across hemispheres and confirm the onset and demise of the last interglacial period between $\sim 129,000$ and $118,000$ years B.P, characterized as the weakest monsoons period recorded in Brazil so far. At millennial timescales the record reveals new insight into the frequency and magnitude of wet monsoon periods, characterized by abrupt changes in $d^{18}O$ at times of Heinrich events in the northern hemisphere. The Tapagem record does not only significantly advance our understanding of past monsoon activity in the southern hemisphere but will also allow for new comparisons with high latitude marine and ice-core records. The relationship with the ice-core gas records is indeed remarkable and very important for constraining the timing and sequence of events recorded around the globe in different geological records, especially when discussing the role of the tropics in modulating earth's climate.

Coccolith calcium carbonate production in the Eastern Tropical Pacific: A paleoecological signal for paleoceanographic purposes

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Palabras claves: Calcareous nannofossils, Pleistocene, equatorial Pacific, paleoproductivity,

A quantitative study of calcareous nannofossils spanning the last 1000 ka (Marine Isotope Stage–MIS–22 to 1) was carried out in two sedimentary sequences, ODP sites 1241 and 1242, located in the warm pool region of the Eastern Tropical Pacific (ETP). The sediments consist of hemipelagic clays with variable amounts calcareous nannofossils, foraminifers, diatoms and terrigenous matter (Mix et al., 2003). The aims of this study involve the analysis of changes in paleoproductivity, nannofossil carbonate contribution and the influence of paleoenvironmental conditions (vertical migration of the nutria/thermocline and surface water circulation) of this region. The ETP has become a topic of priority research because is characterized by a high marine productivity responsible of 50% of the new primary production in the ocean (Chavez and Barber, 1987). The region is driven by the seasonal variation of the atmospheric and oceanic dynamics and also by the interannual variability of the ENSO (El Niño Southern Oscillation), which is a global climatic phenomenon that